



**California Department of
Pesticide Regulation**

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WHAT YOU NEED TO KNOW

about

CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION

Protecting rivers from dormant spray residues

Pesticide applications to orchard crops during winter, when the trees are dormant, kill overwintering arthropod pests (such as scales and mites) and diseases. The treatment is more effective because there are no leaves on the trees and later helps to keep these destructive pests under control through the growing season.

But the organophosphate (OP) pesticides (such as diazinon, methidathion and chlorpyrifos) used as dormant sprays can cause problems when drift occurs, or when rain washes residues into Central Valley rivers and streams. The Department of Pesticide Regulation's (DPR) Dormant Spray Water Quality Initiative, which began in 1996, works to prevent aquatic toxicity from pesticide residues in the Sacramento and San Joaquin Rivers. DPR's efforts to reduce problems caused by dormant sprays will now be augmented by use restrictions.

About the problem

DPR scientists analyzed data from 22 surface water studies conducted between 1991 and 2001 by the Department, other government agencies, and private companies. We found that dormant spray insecticides were frequently detected in the watersheds of the Sacramento and San Joaquin rivers, particularly in tributaries. The highest detections were of diazinon, and coincided with flooding of orchards by winter rains. Small aquatic test invertebrates are killed when exposed for even short periods to the OP levels detected in the

two watersheds. State and federal laws prohibit discharge of substances that make our rivers toxic to aquatic life.

The detections led the Central Valley Regional Water Quality Control Board to declare this problem a violation of its Basin Plan water quality standard for toxicity. In 1998, the State placed the two rivers and the associated Delta/Estuary on the Clean Water Act 303(d) list of impaired waterways, partly because of elevated OP levels originating from dormant spray runoff or drift. These listings require that specific measures be taken to eliminate harmful residues in the watersheds. To do this requires that we understand the specific agricultural production practices that contribute to the problem, how pesticides are moving into waterways, and alternative practices that will reduce pesticide runoff and drift to a level that eliminates toxicity in surface water.

Working toward a solution

Under a 1996 settlement agreement between the Sacramento Valley Toxics Campaign and the State and Central Valley Water Boards, DPR agreed to resolve water quality problems caused by dormant sprays. Rather than immediately move to mandatory restrictions, DPR launched a five-year plan working with growers to see if voluntary practices could be developed and adopted to reduce the movement of these pesticides to surface waters. DPR agreed to periodically evaluate the success of these voluntary efforts toward achieving water quality compliance.

DPR will continue to monitor progress toward eliminating problems in surface water from dormant spray residues. Should additional measures be needed, the Department has a wide range of regulatory options.



Single copies of this handout are available from DPR by calling 916-445-3974, and can be downloaded from DPR's Web site. Go to www.cdpr.ca.gov, click "Programs & Services," then "Dormant Spray Water Quality Initiative."

During that time, DPR worked with commodity groups, pesticide registrants, growers, agricultural advisors, County Agricultural Commissioners, Resource Conservation Districts and others. The Department awarded \$1.2 million in grants to develop pest management practices that could reduce discharges of dormant sprays into surface water. Registrants also did outreach to raise grower awareness and suggest "best management practices" to use when applying pesticides. DPR also conducted or funded \$2.6 million in water monitoring studies between 1991 and 2001.

Under the settlement agreement, if improvements were not made in water quality, DPR would initiate regulatory measures. A DPR analysis of monitoring done between 1991 and 2001 found little progress in reducing aquatic toxicity. (This report, EH-01-01, is on DPR's Web site, www.cdpr.ca.gov, click on "Programs and Services," "Dormant Spray Water Quality Initiative," then "Reports.")

What's next?

Unfortunately, although progress was made, voluntary measures were not sufficient to resolve the problems. As a result, DPR plans mandatory controls to reduce dormant spray residues to acceptable levels. DPR is developing regulations to require buffer zones (where dormant spray applications would be prohibited) around irrigation ditches, drainage canals, or water bodies that may drain into a river or tributary. This is intended to reduce problems caused both by runoff and drift. As an alternative to buffer zones, DPR will allow growers to implement best management practices. Growers who believe buffer zone restrictions are not appropriate given their situation may develop alternative water quality management plans to address runoff and drift. For assistance on voluntary conservation planning, you may wish to contact the federal Natural Resources Conservation Service (NRCS) at (530) 792-5600, or get the number of your local NRCS center at www.nrcs.usda.gov.

For information on DPR's dormant spray initiative, contact Marshall Lee of DPR's Environmental Monitoring Branch, (916) 324-4269, e-mail mlee@cdpr.ca.gov.

Diazinon residues

DPR's review of monitoring data indicated that diazinon residues were particularly problematic and must be reduced to meet water quality standards. When data indicate an unacceptable risk to human health or the environment, regulations require DPR to initiate a formal reevaluation of a product's registration.

In February 2003, the Department placed diazinon dormant spray products into reevaluation. DPR has directed the registrants of this OP to conduct studies that will identify the processes by which dormant spray diazinon products are contributing to contamination of rivers and streams. The registrants must also identify mitigation strategies that will reduce or eliminate diazinon residues in surface water. The measures must be feasible and supported by scientifically valid studies. If no solution can be found, the Department can ban sales and use of dormant spray diazinon products.

Monitoring compliance

DPR will periodically evaluate water quality data to determine progress toward eliminating toxicity problems in surface water from dormant spray pesticides. Should additional steps need to be taken, the Department has a wide range of regulatory options:

- Designate dormant sprays "restricted materials." Under this option, permits would be required to use the pesticides, and local use restrictions imposed.
- Request registrants to amend pesticide product labels to specify a variety of mitigation measures, for example, buffer zone requirements, the establishment of vegetative filter strips, contoured orchard perimeters, or mix/load containment pads.
- Develop a licensing category for commercial applicators applying dormant spray materials, and require training.
- Adopt additional regulations to mitigate adverse effects of dormant sprays.
- Suspend or cancel the registration (or certain uses) of specific dormant spray chemicals or products.